



# TOOLS FOR THE JOB

FIREFIGHTING MONITORS COME IN A VARIETY OF SHAPES AND SIZES – WHICH ONE IS BEST FOR YOUR FACILITY? NICO ZORZETTO OF MONITOR MANUFACTURER SANCO SPA IN NORTHWEST ITALY EXPLAINS THE OPTIONS.



**M**onitors are the most suitable way to discharge large volumes of extinguishing agent (water, foam or dry chemical powder) for cooling or for fire suppression.

In fact, their flow-rates are usually higher than portable nozzles and their throw is much longer than that achieved by standard branch pipes.

Monitors are very flexible – they can be portable, wheeled, they can be mounted on trailers or on vehicles and they can be used for fixed installations. A monitor's body can be cast (with bronze or special alloys) or welded (in particular for stainless steel versions).

Monitors can be operated in several ways:

- manually: thanks to devices such as hand wheels, chains or handlebars
- self-oscillating: the monitor moves horizontally in a pre-set angle thanks to a self-oscillating system (as well as operate in manual mode). This movement can be adjusted both with angular speed and with a pre-set angle.
- remote control system: by hydraulic or electric motors for instance.

Monitors are normally mounted on a rotating base that allows a 360° horizontal movement, whilst the vertical movement can be adjusted to a total angle of around 150°.

The horizontal and vertical orientation is provided by a handlebar/handwheel that – by means of a worm drive –

provide stability to the outlet device during its operation.

Most monitors are manufactured for use with water or foam solution, and with a single or double-barrel. Where the extinguishing agent has a protein base, foam can be produced only by means of a barrel (and not by other types of nozzle).

A self-aspirating nozzle can be installed on the monitor, sucking the foam concentrate and water via a built-in foam proportioning device. Self-aspirating monitors are commonly installed on trailers with or without accompanying tanks, with capacities that can vary between 500-10,000 litres.

A manual monitor can be turned into a self-oscillating monitor via the installation of a self-oscillating unit between the inlet flange of the monitor and the piping flange. Its angular speed and orientation movement can then be adjusted and preset.

## Pole-mounted monitors

To protect wider areas a monitor can also be installed at heights of 2-20 metres, on top of supporting poles or platforms. For these applications manual or remote-controlled monitors are usually requested. In the case of the manual monitor it is normally operated from the base via a system of chains or cables that enable the monitor to be turned 360° horizontally and vertically between -75° to 80°.

## Remote-controlled monitors (RCM)

These electric/hydraulic-operated monitors are usually located in areas where their manual operation would expose a person to a hazard. Although they can be operated at distances of 50-200m away, they also have a manual mode depending on the type of emergency.

Electrically controlled monitors have proven themselves to be more reliable and easier to maintain than hydraulic types, whilst affording a more rapid intervention.

As well as available in a standard version, remote-controlled monitors are also offered in ATEX-approved versions for use in hazardous areas. Their operation is via a joystick or – if in a hazardous area – using explosion proof (ATEX) panels.

Top: wheeled drive, stainless steel welded monitor installed on the top of a vehicle  
Below: tank-mounted trailer monitor.





Cast bronze remote-controlled monitor.

The remote-control console can be used to control different parts of the monitor to adjust foam stream and change between straight jet/spray patterns at the nozzle.

The same console can also control other devices, opening and closing water valves, adjusting foam solution flow as well as controlling the cooling water curtain.

**Large flow-rate monitors**

This kind of monitor is very suitable for extinguishing large fires in a short time. Its high flow rate achieves longer throws, which is why many oil refineries, petrochemical plants and power plants demand this monitor.

Traditionally, autonomy of the system has been considered more important than the specific discharge application rate (lpm/sqm) of the system. More recently, accuracy has become an important consideration for larger flow-rate monitors that are normally used both for fixed and mobile installation and on fire tugs (onshore and off-shore operations).

In marine operations (fire tugs) the minimum performance as per the International Register of Shipping is shown in the table on the right.

**The Red Typhoon**

A typical unit designed and manufactured by Sanco SPA is



Self-oscillating, stainless steel-bodied monitor with adjustable (straight/spray pattern) bronze nozzle.

the Red Typhoon mobile large flow rate monitor (40,000 l/m @10 bar). This unit has been designed for the extinguishment of massive petrochemical fires. It can provide cooling and fire suppression support for large fires, and provide protection to personnel, whilst operating at a safe distance. It has been especially designed for oil tank farms, chemical, petrochemical facilities and refineries. Complete with a self-locking worm/gear for horizontal and vertical movements, the stainless steel (AISI 316) Red Typhoon can be locked at any position for flowing water or foam with a straight stream or full fog pattern.

This unit comprises a double-axe trailer made of large steel profiles that are welded (not bolted) with two trims and four wheels, and which can be towed by a truck.

The towing bar is complete with an automatic mechanical road brake plus a manual parking brake. The towing bar is mounted on a bolted counter plate for ease of adjustment and to match different truck/van hooks. In order to obtain the largest ground footprint – and thus achieve the greatest stability – the unit comprises four vertical manual jacks fixed on horizontal extendable stabilizers. A manoeuvring wheel enables the operator to place the unit in the best operational position.

The unit carries four fire hose containers (two on each side) integrated in the bodywork, with ample capacity for storing fire hoses and an 'easy coil' system for fire hose winding.

The trailer is fitted with several inlet connections, butterfly valves and relevant couplings in accordance with the standards of the country where the unit is to be used.

**Dry chemical monitors**

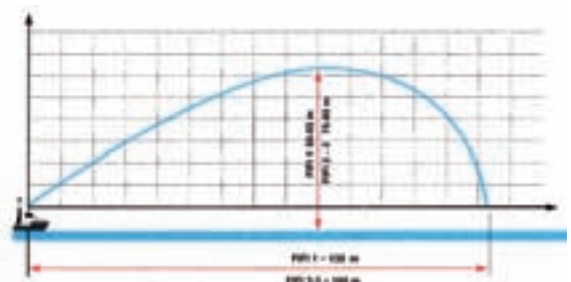
These types of monitors only differ from water/foam monitors by the barrel, which can be set with a constant/adjustable flow rate of 10-50kg per second. No other nozzle can be used to deliver the chemical powder.

Concluding, there is a wide choice of monitors available for any type of application – and expert manufacturers as required can customise the best solutions.

EQUIPMENT	FIRE FIGHTING SHIP		
	FIFI 1	FIFI 2	FIFI 3
<b>PUMPS</b>			
- Number	2	2-4	2-4
- Minimum total capacity (m3/h)	2400	7200	9600
<b>WATER MONITORS</b>			
Minimum number	2	3	4
Minimum discharge rate per monitor (m3/h)	1200	2400	1800
Minimum height of throw (2)	45	70	70
<b>FOAM MONITORS</b>			
- Foam concentrate (autonomy)	-	-	2
			30(3)
<b>HOSE CONNECTIONS, number on each side of ship</b>	4	8	8
<b>COOLING SYSTEM</b>	1	(4)	(4)

**Minimum requested performances**

- (1) Horizontal distance between the monitor outlet and the centre of the impact area of the jet
- (2) Vertical distance between the sea level and the centre of the impact area of the jet, at a horizontal distance of at least 70 m from the nearest part of the ship
- (3) Duration (in minutes) of uninterrupted foam production, with monitor operating at the rated output
- (4) A water spray system is to be installed in case of combined classification of the ship (FF 1-2 or FF 1-3)



# INDUSTRIAL FIRE JOURNAL

THE WORLD'S LEADING VOICE FOR THE INDUSTRIAL HIGH-RISK FIRE INDUSTRY

Summer 2014 issue no. 96

[www.hemmingfire.com](http://www.hemmingfire.com)



## BAD TIMING FOR AN EMERGENCY

Is your crisis management response dependent on the time of day?

